

### Floor cleaning implement

This invention relates to a floor cleaning implement that is provided with a  
5 handle pivotally mounted on a base that supports a brush arrangement and a dust  
collecting container, that via a dust inlet receives dust particles thrown into the  
container by the brush arrangement said base also being provided with a cloth holder  
having a plate facing the floor and being covered by a dust cloth.

A floor cleaner of the above type is previously known, see for instance GB  
10 2389035. This type of floor cleaning implement in one cleaning operation picks up  
larger particles from the floor by means of the brush and/ or by means of a vacuum  
source whereas smaller particles that have a tendency to stick to the floor surface are  
removed by means of the exchangeable cleaning cloth. A disadvantage with this type of  
equipment, in addition to that the device is complicated and expensive, is that the  
15 cleaning efficiency will sometimes not become satisfactory since certain particles and  
spots on the floor are not completely removed.

The purpose of this invention is to create a simple and cheap floor cleaning  
implement that makes it possible to combine an ordinary dust pick up tool with a wet  
cleaning tool. This is achieved by means of a device having the characteristics  
20 mentioned in the claims.

An embodiment of the invention will now be described with reference to the  
accompanying drawings on which Fig. 1 is a perspective view of the implement, Fig. 2  
is a schematic view of the base part of the cleaning implement, Fig. 3 is a schematic  
exploded view of the base part of the implement, Fig. 4 is a schematic perspective view  
25 of the support structure of the base part without the cover portion whereas Fig. 5 is a  
schematic perspective view of a liquid supply plate.

The implement according to the invention comprises a base part 10 that is connected to  
handle 11 by means of a double link arrangement 12 making it possible to pivot the  
handle about two axes that are perpendicular to one another.

30 The base part 10 comprises a support structure 13 and a cover portion 14 that are  
joined to one another in order to constitute a housing. The housing encloses a brush roll  
arrangement 15 and a removable dust collecting container 16 whereas the supports  
structure is provided with a removable cloth holder 17.

The support structure 13 as well as the cover portion 14 are preferably molded plastic parts that in a suitable way are fixed to one another. The cover portion 14 has an inverted open box like structure with an upper wall 18 that is provided with two lugs 19 supporting one of said axes for the double link arrangement. The upper wall also has an opening 20 through which the dust collecting container 16 can be inserted.

The support structure 13 comprises a flat, rear bottom portion 21 that continues into a nozzle section 22 arranged at the front part of the support structure. The nozzle section is provided with two elongated openings 23 facing the floor and arranged somewhat below the bottom portion 21. The nozzle openings 23 are arranged in a V-shaped pattern with the tip of the V extending in the forward direction. The brush roll arrangement 15 comprises two brush rolls 24 and a drive belt 25 transmitting rotating motion from an electric motor 26 to the brush rolls. The brush rolls are in a corresponding way as the nozzle openings 23 arranged in a non parallel fashion between upwardly extending walls 27, 28, 29 and 30 of the support structure. The brush rolls are connected to one another by means of a flexible coupling 31 such that they are driven simultaneously by the drive belt 25. The electric motor is via a switch and an electric control circuit, not shown, connected to rechargeable batteries, not shown, arranged in the housing.

The support structure 13 is also provided with a transverse rear wall 32 that extends between the walls 27 and 30 such that they together constitute a pocket 33 for the dust collecting container 16. The dust collecting container has a box shaped elongated structure with a V-shaped front wall 34 corresponding to the V-shape of the brush arrangement. The front wall 34 of the container is provided with two openings 35 arranged at the upper part of the container. The container is also provided with a lid 36 that can be opened to empty the container. Behind each nozzle opening 23 there is an upwardly and rearwardly slanting surface 37 that extends from the edge of the nozzle opening 23 up to the opening 35 of the dust collecting container when the container is inserted into the base part 10.

The cloth holder 17 is removably arranged on the support structure 13 and comprises a plate 38 with an upwardly extending liquid container 39 that is covered by a closure 40. The liquid container is via a valve (not shown) fluidly connected to a pipe 41 extending in the transverse direction of the base part and having several small openings 42 through which cleaning liquid can be disposed on a cloth 43 that extends over the bottom side of the plate 38 and is folded around the edges of the plate up to the

upper side where it is secured to the plate. The thickness of the plate 38 is such that the bottom side of the plate, when being secured to the support structure 13, is mainly on the same level as the nozzle openings 23.

The device operates in the following manner. Before the cleaning operation starts  
5 the operator removes the cloth holder 17 from the support structure 13 and fixes a cloth 43 around the plate 38. Cleaning liquid is filled in the liquid container 39 and the cloth holder is again fastened to the support structure. When the base part 10 has been placed on the floor the operator opens the valve for a short while in order to admit the cleaning liquid in the container 39 to be distributed to the cloth 43 through the pipe 41 and the  
10 openings 42. The operator then starts the electric motor 26 which means that the brush rolls 24 start to rotate. When the operator pushes the handle in the forward direction the dust particles on the floor are thrown into the dust collecting container 16 through the openings 23, 35 at the same time as the wet cloth 43 cleans the floor from spots and remaining particles. Cleaning liquid can consequently be dispensed at any time time by  
15 the operator during the cleaning operation. When the operator has finished the cleaning work the dust container 16 is, if necessary, removed from the base part and is emptied in a bin or the like whereas the cloth holder 17 might also be removed in order to empty the liquid container 39 and/or to take away the cloth 43.

It should in this connection be mentioned that it of course is possible to use a pump  
20 for distributing the liquid from the liquid container to the cloth as well as it is possible to spray the liquid directly on the surface that has to be cleaned and it is also possible to arrange for a continuous flow of liquid to the cloth. It should also be stressed that the expression brush roll in this context also includes rolls that are provided with other means than brushes such as elongated strip shaped plastic or rubber elements.

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